

# *AHP WELDS USER MANUAL*



*Alpha-TIG201XD*

(version V)



1-16-19

# Contents

|                                     |    |
|-------------------------------------|----|
| 1. About your Alpha TIG 201XD ..... | 2  |
| 2. Safety .....                     | 3  |
| 3. Parameters .....                 | 6  |
| 4. Panel Index .....                | 7  |
| 5. Setup Instructions .....         | 8  |
| 6. Operating Instructions .....     | 10 |
| 7. Polarity Recommendations .....   | 12 |
| 8. Routine Maintenance .....        | 13 |
| 9. Warranty .....                   | 15 |

---

## About your AlphaTig 201XD

---

This welder adopts rectifiers designed with advanced inverter technology. The introduction of inverter TIG welders derives from inverter power theory and devices. The inverter TIG welding power uses high-power IGBTs to turn the working frequency of 50/60Hz to high frequency (20KHz or higher). Then voltage is reduced and current is regulated. A powerful DC power source can be produced by using the pulse width modulation (PWM) technology. The size and weight of inverter welders are reduced remarkably, while the efficiency is increased by 30% compared to older styled transformer based welders.

This product is a multi-purpose unit composed of DC pulse TIG welder and AC pulse TIG welder, and DC Stick welder (MMA). This welder allows you the versatility of welding various types of metal including aluminum.



### **Warning!**

This unit has a High Frequency start. This can interfere with some sensitive electronic components so care should be taken when in close proximity to such devices.

## Safety Warnings

Notes in this manual are to ensure correct use of the machine and to keep you and others safe. The welder has been designed with your safety in mind.

| Sign                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <ul style="list-style-type: none"> <li>✧ Improper use of an electric welder can cause electric shock, injury or death</li> </ul>                                                                                                                                                                                                                                                                         |
|    | <ul style="list-style-type: none"> <li>✧ Do not breathe fumes that are produced by the welding operation. These fumes are dangerous</li> <li>✧ Operation in small or unventilated spaces may cause health issues</li> </ul>                                                                                                                                                                              |
|    | <ul style="list-style-type: none"> <li>✧ Do not operate electric arc welder in areas where flammable or explosive vapors are present.</li> <li>✧ Ensure power supply has properly rated wiring to handle power usage.</li> <li>✧ Do not use on or near combustible surfaces.</li> <li>✧ Remove all flammable items from the welding area</li> <li>✧ Do not weld frozen or airtight workpieces</li> </ul> |
|   | <ul style="list-style-type: none"> <li>✧ <b>ARC RAYS CAN BURN!</b> Use an approved shield with the proper filter to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding</li> </ul>                                                                                                                                                                     |
|  | <ul style="list-style-type: none"> <li>✧ Avoid explosions and injury by securing the gas cylinder firmly and following all precautions.</li> </ul>                                                                                                                                                                                                                                                       |
|  | <ul style="list-style-type: none"> <li>✧ Moving parts can be dangerous. Do not put fingers near moving parts and secure loose clothing that can become entangled</li> </ul>                                                                                                                                                                                                                              |
|  | <ul style="list-style-type: none"> <li>✧ Never point the welding gun at any part of the body, other people, or metal surfaces.</li> <li>✧ Wear safety glasses and handle welding wire safely as it can be sharp and cause injury.</li> </ul>                                                                                                                                                             |



**Please follow the instructions below to avoid serious injury and accidents**

- Thoroughly read and understand the manual before attempting to operate the equipment
- Never use the equipment to do anything other than welding
- Do not allow non-essential individuals into the welding area
- Individuals with pacemakers should use caution and consult their doctor prior to being allowed near the magnetic field created by the welder
- The welder should only be operated and maintained by professional personnel



**Please follow the instructions below to avoid electric shock**

**Improper use of an electric welder can cause electric shock, injury and death!**

- Ensure that your welder and other equipment is secure and will not fall over.
- Do not allow fingers or loose clothing near the fan
- Do not operate the welder with the cover off
- Do not touch any electrical components that may be live.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- The welder power switch is to be in the OFF position and the power supply is to be disconnected when performing any maintenance or consumable changes.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear.
- Always operate the welder in a clean, dry, well ventilated area. Do not operate the welder in humid, wet, rainy or poorly ventilated areas.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- The electrode and work (or ground) circuits are electrically "hot" when the welder is on. Do not touch these "hot" parts with your bare skin or wet clothing.
- Disconnect from power supply before assembly, disassembly or maintenance of the torch or contact tip or changing wire spools.
- Always attach the ground clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.
- Never use the welder as a melting or warming device, such as pipe thawing.

## DANGER

**Do not operate electric arc welder in areas where flammable or explosive vapors are present.**

- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted surfaces, dash boards, engines, etc.
- Ensure power supply has properly rated wiring to handle power usage.
- Do not use on or near combustible surfaces.
- Remove all flammable items within 35 feet of the welding area.
- Do not weld frozen or airtight pipes/workpieces

## WARNING

**Do not breathe fumes that are produced by the welding operation. These fumes are dangerous.**

- Always work in a properly ventilated area wearing protective gear to minimize hazards
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

## WARNING

**Arc rays can burn. Use proper shielding to protect your eyes when welding or when observing open arc welding**

- Use suitable clothing made from durable flame-resistant material to protect your skin. Protect nearby individuals with a non-flammable barrier.
- Wear safety glasses under your welding helmet with side shields.
- If other persons are in the welding area, use welding screens to protect bystanders from sparks and arc rays.

## ATTENTION

**Electromagnetic fields may be dangerous**

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known
- 

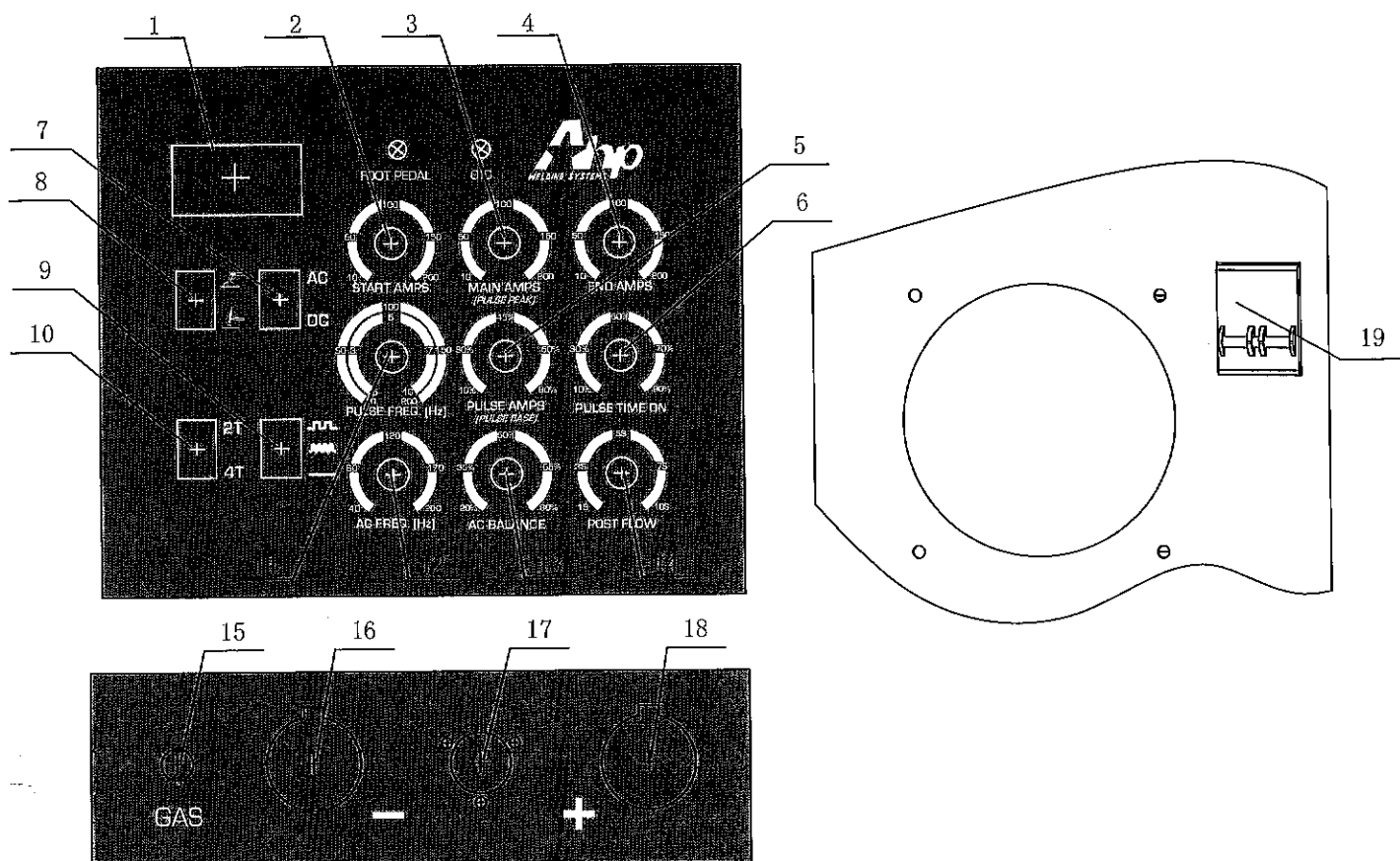
**Avoiding interference from sources of electromagnetic fields is the user's responsibility.**

## Parameters

| Model<br>Parameter             | Alpha-TIG201XD              |                             |
|--------------------------------|-----------------------------|-----------------------------|
| Power voltage                  | 1phase AC110V±15%           | 1phase AC220V±15%           |
| Frequency (Hz)                 | 50/60                       | 50/60                       |
| Rated Input Current (A)        | TIG:37.4                    | TIG:28                      |
|                                | MMA:58.2                    | MMA:42.2                    |
| Output Current Regulation (A)  | TIG:10-150                  | TIG:10-200                  |
|                                | MMA:30-145                  | MMA:30-195                  |
| No-load Voltage (V)            | 50-80                       | 50-80                       |
| Rated Working Voltage (V)      | TIG:16                      | TIG:18                      |
|                                | MMA:25.8                    | MMA:27.8                    |
| AC BALANCE                     | (-5+5) 20-80%               | (-5+5) 20-80%               |
| Pulse Time On (%)              | 10-90                       | 10-90                       |
| POST FLOW (S)                  | 1-10                        | 1-10                        |
| Pulse Frequency Hz             | 0.5-5                       | 0.5-5                       |
| Base Value Current (A)         | 10-150                      | 10-200                      |
| Arc Starting Current (A)       | 10-150                      | 10-200                      |
| Arc End Amps                   | 10-150                      | 10-200                      |
| Remote Control                 | Yes                         | Yes                         |
| Arc Ignition Mode              | high-frequency arc ignition | high-frequency arc ignition |
| Efficiency (%)                 | 80                          | 80                          |
| Load Duration Factor (%)       | 60                          | 60                          |
| Power Factor                   | 0.73                        | 0.73                        |
| Class of Insulation            | F                           | F                           |
| IP code                        | IP21                        | IP21                        |
| Weight (lbs)                   | 67                          |                             |
| Overall Dimension (inches)     | 30 x12 x24.5                |                             |
| Max welding thickness (inches) | .5 ( 1/2")                  |                             |
| Pulse AMPS(PEAK)               | 10%-80%                     | 10%-80%                     |
| AC Frequency Adjustment        | 40-200Hz                    | 40-200Hz                    |



## Panel Index



|    |                                  |    |                                                                |
|----|----------------------------------|----|----------------------------------------------------------------|
| 1  | Amp meter                        | 11 | Pulse frequency adjustment                                     |
| 2  | Start Amp adjustment             | 12 | AC frequency adjustment                                        |
| 3  | Main Amp adjustment (Pulse Peak) | 13 | Cleaning width adjustment (balance)                            |
| 4  | End Amp adjustment               | 14 | Post Flow adjustment                                           |
| 5  | Pulse Amps adjustment            | 15 | Gas Connector                                                  |
| 6  | Pulse time adjustment            | 16 | Negative electrode output                                      |
| 7  | AC/DC Function switch            | 17 | Torch control switch socket/<br>Remote( pedal ) control socket |
| 8  | TIG MMA function switch          |    |                                                                |
| 9  | Pulse switch ON/OFF              | 18 | Positive electrode output                                      |
| 10 | 2T/4T switch                     | 19 | Power switch                                                   |

---

## Setup Instructions

---

The welder is designed with a power voltage compensation. When power voltage fluctuates within a range of  $\pm 15\%$  of rated voltage, it will continue to operate.

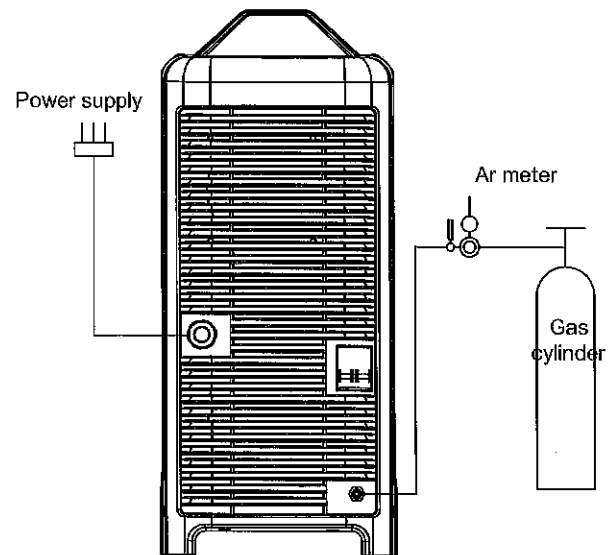
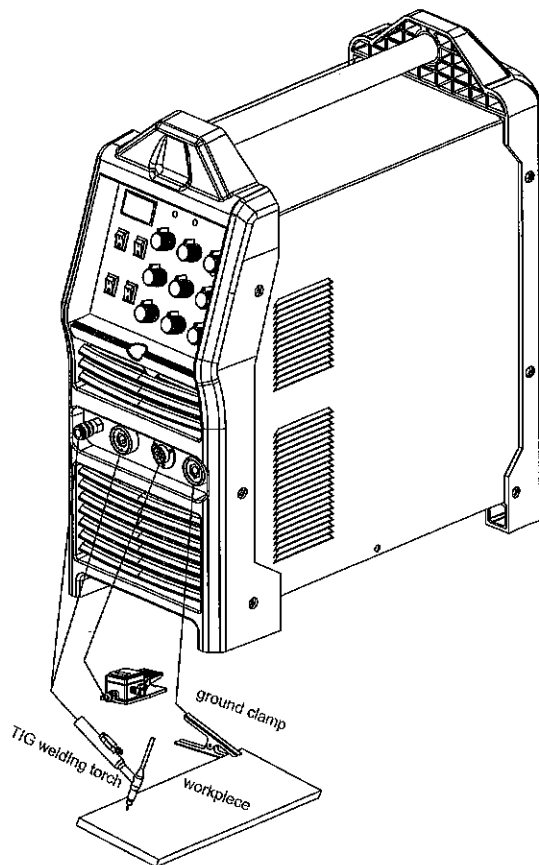
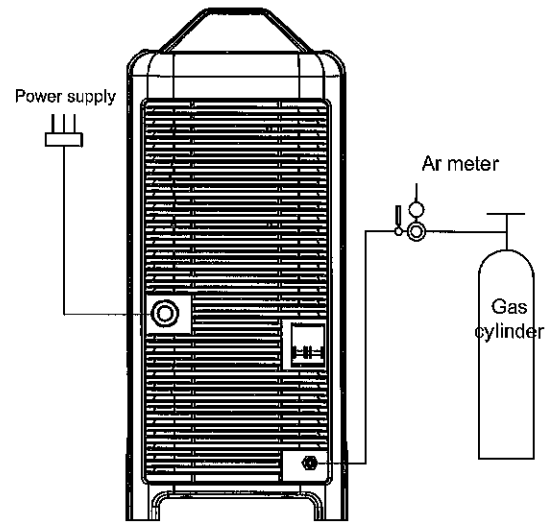
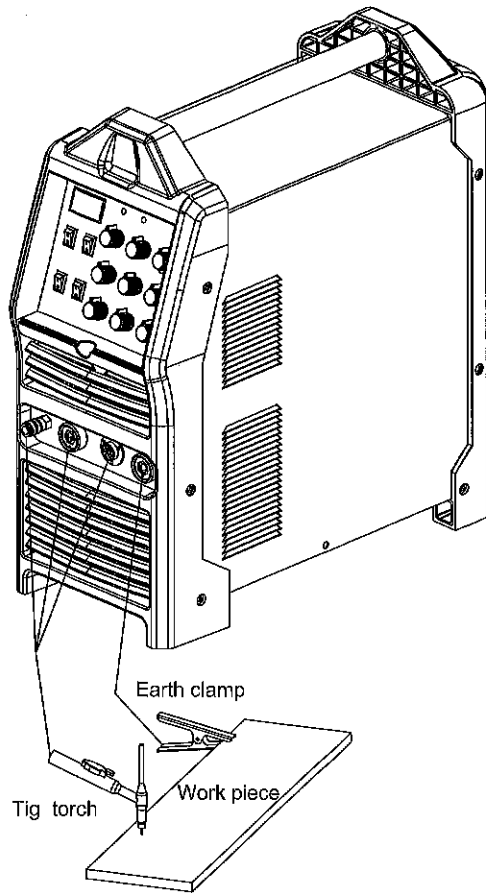
If a longer cable is used, we suggest using cable with a greater cross section in order to reduce line loss voltage.

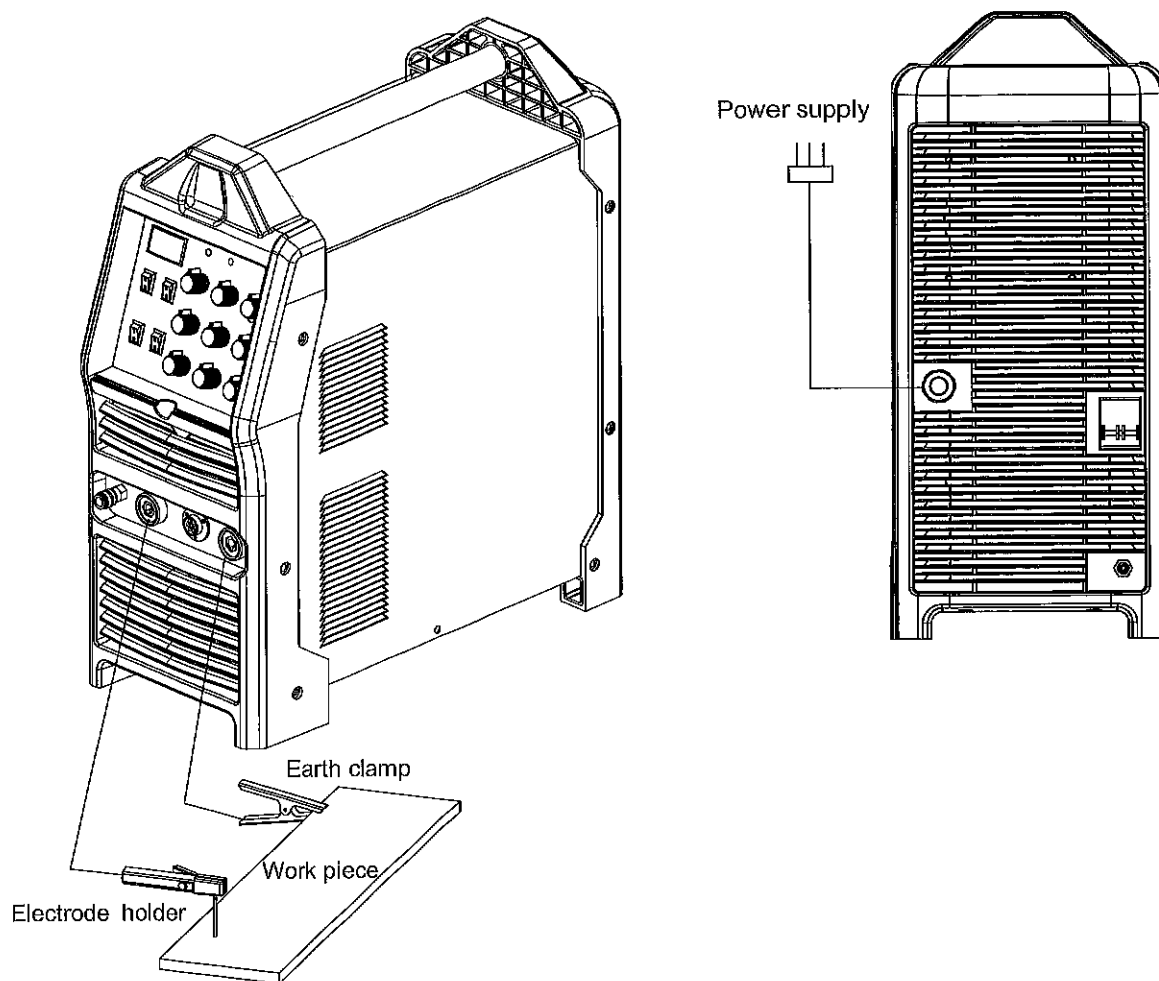
### PLEASE NOTE:

This Welder is designed to operate on Single Phase 110 and 220 Volt power sources. (110v 120v 220v 240v) with a plus or minus variant of 15%

1. Make sure that the vent of the welder is not covered or plugged to ensure the cooling fans can operate to their full potential.
2. Please ensure all fittings and connections from argon bottle to welder are secured correctly to prevent leaking.
3. When using a generator the unit should be grounded reliably with a grounding rod driven into the ground. The generator needs to have clean sine wave. Fluctuating or spiking voltage can cause serious damage to the welder.
4. The Ground Clamp dinse connector is inserted into the work port on the welder and is turned clockwise to secure. The ground clamp is connected to a clean surface as close as possible to the welding operation to ensure a good ground.
5. Install the TIG torch copper nut connection (place supplied plastic sleeve on nut connection) from the torch cable connection to the TIG port, and tighten clockwise.
6. When the pedal switch is used connect the 5 pin plug of the pedal switch to the control outlet socket on the panel face.
7. For stick operation (MMA), select stick function on the TIG/MMA switch, make sure the Torch/Pedal switch is in the torch position. Connect the stick electrode holder to the negative port (-) and the ground dinse is connected to the positive port (+), these can be reversed for Stick function for running electrode positive output.
8. Please note the diagram shows the whip in the electrode negative output.

## Alpha-TIG201XD Installation diagram





---

## Operating Instructions

---

### DC TIG welding

1. Turn the power switch ON, this is located on the back of the unit, the digital current meter and the cooling fans will turn on.
2. Open the valve on the gas cylinder and regulate the flow meter to the required value ( 15 to 20 cfh).
3. If the AC/DC switch is on DC mode, and in TIG function, welding such metals as stainless steel, iron and copper is possible. When in AC mode aluminum welding is possible
4. When the pulse switch is in the on position, you will need to set the pulse frequency for desired effect.
5. The pulse amps are a percentage of the main amps and this is to be set to what the required amps are for the type of material being welded.
6. When you press the control button on the torch this will activate the solenoid valve and the high frequency in the machine, a sound will be heard with the argon gas flowing through the torch. If switched to pedal operation the pedal activates the flow and high frequency start.

7. The tungsten electrode of the welding torch is 2-4 mm from the work piece.
8. Using the Post flow control will protect the weld while it cools down by continuing the gas flow after the arc stops.
9. When 2T/4T switch is in the 2T position only the main amps will operate along with the post flow. In 4T position arc start amps and end amps will work. Do not use 4T function with the foot pedal.
10. In 4T mode when you press and hold the switch, an arc will start and continue to run in start amp setting until you release the switch resulting in the main amps running. Pressing and holding the switch again, will run end amps. Releasing again, operates post flow and terminates the arc.

### **AC TIG welding**

1. If AC/DC switch is in AC mode, this process will weld aluminum and magnesium. All other metals require DC mode.
2. The AC balance (cleaning action) is used for oxidized aluminum. Care must be taken in choosing the correct tungsten size, as too much cleaning action can overheat the tungsten and melt it.
3. The AC frequency mode can alter the width of the arc and can create a narrow or wider bead depending on the setting (125Hz is a common setting). Having a higher frequency can be of help when working with thinner aluminum as it creates a smaller weld bead and using less gives a softer wider bead.

### **DC STICK welding (SMAW)**

1. For stick operation (MMA), select stick function on the TIG/MMA switch. Connect the stick electrode holder to the negative port (-) and the ground dinse is connected to the positive port (+), these can be reversed with the electrode holder in the positive port (+). The diagram shows electrode negative, this gives a softer flowing bead for most rods.



#### **Warning:**

Inserting or pulling out any cable wire or plug while power is on will be hazardous and will damage the welder.





